Amendments to the Claims

The listing of claims will replace the previous version, and the listing of claims:

Listing of Claims

1. (Currently amended) A stent comprising a tubular stent matrix of which diameter is extendable and ~~a~~ flexible solid polymer ~~layer coating~~ layers coated on said stent matrix, wherein

said polymer ~~layer is~~ layers are closely attached to and ~~covers the~~ cover an entire surface of the stent matrix, said polymer layers include a plurality of fine through pores formed, after formation of the polymer layers, at portions where the stent matrix does not exist.

2. (Original) A stent as claimed in claim 1, wherein said stent matrix is a mesh metallic member.

3. (Original) A stent as claimed in claim 2, wherein said mesh metallic member is made of cobalt-chromium-nickel-iron alloy.

4. (Original) A stent as claimed in claim 2, wherein said mesh metallic member is made of nickel-titanium alloy.

5. (Canceled)

6. (Currently amended) A stent as claimed in claim ~~5~~ 1, wherein said fine pores are spaced from each other at substantially equal intervals.

7. (Currently amended) A stent as claimed in claim ~~5~~ 1, wherein said fine pores are spaced from each other at intervals of from 51 to 10000 μm and each pore has a diameter of from 5 to 500 μm.

8. (Currently amended) A stent as claimed in claim 1, wherein each said polymer layer is made of segmented polyurethane.

9. (Currently amended) A stent as claimed in claim 1, wherein each said polymer layer is made of a polymer of polyolefin series.

10. (Currently amended) A stent as claimed in claim 1, wherein each said polymer layer is a polymer film of silicone series.

11. (Currently amended) A stent as claimed in claim 1, wherein the thickness of each said polymer layer is from 10 to 100 μm.

12. (Currently amended) A stent as claimed in claim 1, wherein each said polymer layer is coated with a biodegradable polymer.

13. (Original) A stent as claimed in claim 12, wherein said biodegradable polymer contains a drug.

14. (Original) A stent as claimed in claim 13, wherein said drug is selected from a group consisting of heparin, low-molecular heparin, hirudin, argatroban, formacolin, vapiprost, prostamoline, prostakilin homolog, dextran, D-phe-pro-arg chloromethyl ketone, dipyridamole, platelet receptor antagonist of glycoprotein, recombinant hirudin, thrombin inhibitor, vascular heptyne, angiotensin-converting enzyme inhibitor, steroid, fibrocyte growth factor antagonist, fish oil, omega 3 fatty acid, histamine, antagonist, HMG-CoA reductase inhibitor, seramin, serotonin blocker, thioprotease inhibitor, triazolopyrimidine, interferon, vascular endothelial growth factor (VEGF), rapamycin, FK506, mevalotin, and fuluvastatin.

15. (Currently amended) A process of producing a stent having a tubular stent matrix of which diameter is extendable and flexible polymer films which are attached to both ~~the~~ an inner periphery and ~~the~~ an outer periphery of said stent matrix and have a plurality of fine pores formed therein, said process comprising:

a step of forming a polymer film for an outer layer by rotating a mold having a cylindrical inner bore about its axis and also supplying a liquid resin material into the mold;

a step of supplying said stent matrix into said mold;

a step of forming a polymer film for an inner layer by rotating the mold about its axis and also supplying a liquid resin material into the mold;

a step of releasing the stent matrix with the films from the mold, and

a step of perforating a plurality of the fine through pores at portions where the stent matrix does not exist.

16. (Currently amended) A process of producing a stent as claimed in claim 15, wherein the polymer film for the outer layer is made of a base polymer only.

17. (Currently amended) A process of producing a stent as claimed in claim 15, wherein the step of forming a polymer film for the outer layer comprises forming a first polymer film for the outer layer made of a biodegradable polymer and, after that, forming a second polymer film for the outer layer made of a base polymer on the inner side of the first polymer film.

18. (Currently amended) A process of producing a stent as claimed in claim 15, wherein said polymer film for the inner layer is made only of a base polymer.

19. (Currently amended) A process of producing a stent as claimed in claim 15, wherein the step of forming a polymer film for the inner layer comprises forming a first polymer film for the inner layer made of a base polymer and, after that, forming a second polymer film for the inner layer made of a biodegradable polymer on the inner side of the first polymer film.

20. (Currently amended) A process of producing a stent as claimed in claim 15, wherein the polymer film for the outer layer and the polymer film for the inner layer are made of a base polymer only, and

after ~~the~~ removal of the mold, the stent matrix with the outer and inner films is impregnated into a liquid resin material of biodegradable polymer so as to form a coating layer of the biodegradable polymer.

21. (Previously presented) A process of producing a stent as claimed in claim 16, wherein the base polymer is a segmented polyurethane polymer.

22. (Canceled)

23. (Currently amended) A process of producing a stent as claimed in claim ~~22~~ 15, wherein ~~the~~ perforation is conducted by laser.

24. (Previously presented) A process of producing a stent as claimed in claim 15, wherein the fine pores are formed at substantially equal intervals.

25. (Currently amended) A process of producing a stent having a tubular stent matrix of which diameter is extendable and flexible polymer films which are attached to both ~~the~~ an inner periphery and

~~the~~ an outer periphery of said stent matrix and have a plurality of fine pores formed therein, said process comprising:

a step of forming the polymer film by impregnating a mandrel into a liquid resin material for forming the polymer film and pulling up the mandrel; ~~and~~

a step of equalizing the thickness of the polymer film by pulling up the mandrel in ~~the~~ a vertical direction and controlling ~~the~~ a pulling-up speed; and

a step of perforating a plurality of fine through pores at portions where the stent matrix does not exist.

26. (Original) A process of producing a stent as claimed in claim 25, wherein the pulling-up speed is gradually lowered.

27. (Previously presented) A process of producing a stent as claimed in claim 25, wherein the polymer film is made of a base resin material only.

28. (Previously presented) A process of producing a stent as claimed in claim 25, wherein the polymer film comprises a base layer made of a base resin material and a layer of a biodegradable polymer covering the surface of the base layer.

29. (Previously presented) A process of producing a stent as claimed in claim 27, wherein the liquid base resin material is a solution of segmented polyurethane polymer.

30. (Previously presented) A process of producing a stent as claimed in claim 25, wherein said fine pores are formed after the polymer film is formed.

31. (Original) A process of producing a stent as claimed in claim 30, wherein said fine pores are formed by laser machining.

32. (Currently amended) A process of producing a stent having a tubular stent matrix of which diameter is extendable and flexible polymer films which are attached to both ~~the~~ an inner periphery and ~~the~~ an outer periphery of said stent matrix and have a plurality of fine pores formed therein, said process comprising:

a step of inserting a polymer film for an inner layer into the stent matrix and overlaying a polymer film for an outer layer onto the stent matrix; ~~and~~

a step of welding the respective polymer films to the stent matrix; and

a step of perforating a plurality of fine through pores at portions where the stent matrix does not exist.

33. (Original) A process of producing a stent as claimed in claim 32, wherein the welding is conducted by heating the respective polymer films.

34. (Original) A process of producing a stent as claimed in claim 32, wherein the respective polymer films are welded to the stent matrix by heating the stent matrix with high-frequency dielectric heating.

35. (Original) A process of producing a stent as claimed in claim 32, wherein the respective polymer films are welded to the stent matrix by heating the stent matrix with Joule heat.

36. (Original) A process of producing a stent as claimed in claim 32, wherein the respective polymer films and the stent matrix are welded by supersonic vibration.

37. (Original) A process of producing a stent as claimed in claim 32, wherein the polymer films are welded to the stent matrix by hot isostatic pressing.

38. (Original) A process of producing a stent as claimed in claim 32, wherein the polymer films are welded to the stent matrix by using a heat shrinkable film.

39. (Previously presented) A process of producing a stent as claimed in claim 32, wherein the respective polymer films and the stent matrix are pressurized from both sides during the welding.

40. (Currently amended) A process of producing a stent as claimed in claim 39, wherein ~~the~~ pressurization is conducted by inserting a mandrel to the polymer film for the inner layer and applying pressures to the polymer film for the outer layer in a radial direction toward ~~the~~ a middle line.

41. (Canceled)

42. (Currently amended) A process of producing a stent as claimed in claim ~~41~~ 32, wherein ~~the~~ perforation is conducted by laser.

43. (Currently amended) A process of producing a stent as claimed in claim ~~41~~ 32, wherein the fine pores are formed at substantially equal intervals.

44. (Previously presented) A process of producing a stent as claimed in claim 32, wherein the polymer films are tubular.

45. (Previously presented) A process of producing a stent as claimed in claim 32, wherein said polymer films are coated with a biodegradable polymer.

46. (Previously presented) A process of producing a stent as claimed in claim 24, wherein said fine pores are spaced from each other at intervals of from 51 to 10000 μm and each pore has a diameter of from 5 to 500 μm.

47. (Previously presented) A process of producing a stent as claimed in claim 15, wherein the thickness of said polymer films is from 10 to 100 μm.

48. (Previously presented) A process of producing a stent as claimed in claim 15, wherein said stent matrix is a mesh metallic member.

49. (Previously presented) A process of producing a stent as claimed in claim 19, wherein said biodegradable polymer contains a drug.

50. (Original) A process of producing a stent as claimed in claim 49, wherein said drug is selected from a group consisting of heparin, low-molecular heparin, hirudin, argatroban, formacolin, vapiprost, prostamoline, prostakilin homolog, dextran, D-phe-pro-arg chloromethyl ketone, dipyridamole, platelet receptor antagonist of glycoprotein, recombinant hirudin, thrombin inhibitor, vascular heptyne, angiotensin-converting enzyme inhibitor, steroid, fibrocyte growth factor antagonist, fish oil, omega 3 fatty acid, histamine, antagonist, HMG-CoA reductase inhibitor, seramin, serotonin blocker, thioprotease inhibitor, triazolopyrimidine,

interferon, vascular endothelial growth factor (VEGF), rapamycin, FK506, mevalotin, and fuluvastatin.

51. (Previously presented) A stent produced by a process claimed in claim 15.

52. (Currently amended) A stent comprising a plurality of stent ~~matrixes~~ matrices of which diameter is extendable and polymer films which are attached to both ~~the~~ inner peripheries and ~~the~~ outer peripheries of said stent ~~matrixes~~ matrices and have a plurality of fine through pores formed therein, wherein said stent ~~matrixes~~ matrices are aligned in ~~the~~ a longitudinal direction thereof and are united by the polymer films, and said plurality of fine pores is formed, after formation of the polymer films, at portions where the stent matrices do not exist.

53. (Currently amended) A stent as claimed in claim 52, wherein the stent ~~matrixes~~ matrices are independent from each other.

54. (Currently amended) A stent comprising a plurality of stent ~~matrixes~~ matrices which are aligned in ~~the~~ a longitudinal direction thereof at intervals, a cylindrical outer polymer film which is overlaid on ~~the~~ outer peripheries of said stent ~~matrixes~~ matrices, and a cylindrical inner polymer film which is laid on ~~the~~ inner peripheries of said stent ~~matrixes~~ matrices, wherein said stent ~~matrixes~~ matrices are united by the outer polymer film and the inner polymer film, wherein

the outer polymer film and the inner polymer film allow ~~the~~ shift of the stent ~~matrixes~~ matrices relative to the polymer films during expansion of the stent ~~matrixes~~ matrices, ~~and~~

the outer polymer film and the inner polymer film are bonded to each other at portions between adjacent stent ~~matrixes~~ matrices, and

said outer and inner polymer films include a plurality of fine through pores formed, after formation of the polymer films, at portions where the stent matrices do not exist.

55. (Currently amended) A stent as claimed in claim 52, wherein said stent ~~matrixes~~ matrices are mesh metallic members.

56. (Currently amended) A stent as claimed in claim 54, wherein said outer polymer film and said inner polymer film are not bonded to said stent ~~matrixes~~ matrices.

57. (Currently amended) A stent as claimed in claim 55, wherein said outer polymer film and said inner polymer film are partially bonded to each other at meshes of the stent ~~matrixes~~ matrices composed of said mesh metallic members.

58. (Currently amended) A stent as claimed in claim 57, wherein said outer polymer film and said inner polymer film are bonded in ~~the~~ a dot form.

59. (Currently amended) A stent as claimed in claim 54, wherein said outer polymer film and said inner polymer film are partially bonded to said stent ~~matrixes~~ matrices.

60. (Currently amended) A stent as claimed in claim 59, wherein said outer polymer film and said inner polymer film are bonded to said stent ~~matrixes~~ matrices in ~~the~~ a dot form.

61. (Currently amended) A stent as claimed in claim 54, wherein said outer polymer film and said inner polymer film are flexible polymer films ~~each having a plurality of fine pores~~.

62. (Currently amended) A stent as claimed in claim 55, wherein at portions where said outer polymer film and said inner polymer film are not bonded to said stent ~~matrixes~~ matrices and said outer polymer film and said inner polymer film are not bonded to each other, spaces between said outer polymer film and said inner polymer film are filled with one or more selected from a group consisting of physiologically active substances, radioactive substances, and magnetic substances.

63. (Currently amended) A stent comprising a stent matrix composed of a mesh tube of which diameter is extendable, a cylindrical outer polymer film overlaid on ~~the~~ an outer periphery of said stent matrix, and a cylindrical inner polymer film laid on ~~the~~ an inner periphery of said stent matrix, wherein

said outer polymer film and said inner polymer film are not bonded to said stent matrix and are bonded to each other at least at some of meshes of said mesh stent matrix, and

said outer and inner polymer films include a plurality of fine through pores formed, after formation of the polymer films, at portions where the stent matrix does not exist.

64. (Currently amended) A stent as claimed in claim 63, wherein said outer polymer film and said inner polymer film are bonded to each other in ~~the~~ a dot form.

65. (Currently amended) A stent as claimed in claim 63, wherein after said outer polymer film and said inner polymer film are

bonded to each other in ~~the~~ a dot form, the bonded portions are perforated by the fine pores.

66. (Currently amended) A stent as claimed in claim 63, wherein said outer polymer film and said inner polymer film are flexible polymer films ~~having fine pores formed therein~~.

67. (Currently amended) A stent as claimed in claim 63, wherein at a portion where said outer polymer film and said inner polymer film are not bonded to each other, a space between said outer polymer film and said inner polymer film ~~are~~ is filled with one or more selected from a group consisting of physiologically active substances, radioactive substances, and magnetic substances.

68. (Previously presented) A stent as claimed in claim 52, wherein said polymer films are coated with a biodegradable polymer.

69. (Original) A stent as claimed in claim 68, wherein said biodegradable polymer contains a drug.

70. (Original) A stent as claimed in claim 69, wherein said drug is selected from a group consisting of heparin, low-molecular heparin, hirudin, argatroban, formacolin, vapiprost, prostamoline, prostakilin homolog, dextran, D-phe-pro-arg chloromethyl ketone, dipyridamole, platelet receptor antagonist of glycoprotein, recombinant hirudin, thrombin inhibitor, vascular heptyne, angiotensin-converting enzyme inhibitor, steroid, fibrocyte growth factor antagonist, fish oil, omega 3 fatty acid, histamine, antagonist, HMG-CoA reductase inhibitor, seramin, serotonin blocker, thioprotease inhibitor, triazolopyrimidine, interferon, vascular endothelial growth factor (VEGF), rapamycin, FK506, mevalotin, and fuluvastatin.

71. (Previously presented) A stent as claimed in claim 52, wherein said fine pores are arranged at substantially equal intervals.

72. (Original) A stent as claimed in claim 71, wherein said fine pores are spaced from each other at intervals of from 51 to 10000 μm and each pore has a diameter of from 5 to 500 μm.

73. (Previously presented) A stent as claimed in claim 52, wherein said polymer films are made of segmented polyurethane.

74. (Previously presented) A stent as claimed in claim 52, wherein the thickness of said polymer films is from 10 to 100 μm.

75. (Previously presented) A stent as claimed in claim 52, wherein said polymer films are coated with a biodegradable polymer.

76. (Original) A stent as claimed in claim 75, wherein said biodegradable polymer contains a drug.

77. (Original) A stent as claimed in claim 76, wherein said drug is selected from a group consisting of heparin, low-molecular heparin, hirudin, argatroban, formacolin, vapiprost, prostamoline, prostakilin homolog, dextran, D-phe-pro-arg chloromethyl ketone, dipyridamole, platelet receptor antagonist of glycoprotein, recombinant hirudin, thrombin inhibitor, vascular heptyne, angiotensin-converting enzyme inhibitor, steroid, fibrocyte growth factor antagonist, fish oil, omega 3 fatty acid, histamine, antagonist, HMG-CoA reductase inhibitor, seramin, serotonin blocker, thioprotease inhibitor, triazolopyrimidine, interferon, vascular endothelial growth factor (VEGF), rapamycin, FK506, mevalotin, and fuluvastatin.

78. (New) A stent as claimed in claim 1, wherein the stent has smooth inner and outer surfaces by the polymer layers.